



# TORQ Analysis of Maintenance Workers, Machinery to Motorboat Mechanics

## INPUT SECTION:

Transfer	Title	O* NET	Filters		
From Title:	Maintenance Workers, Machinery	49-9043.00	Abilities:	Importance Level: 50	Weight: 1
To Title:	Motorboat Mechanics	49-3051.00	Skills:	Importance Level: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

## OUTPUT SECTION:

Grand TORQ:

88

Ability TORQ		Skills TORQ		Knowledge TORQ	
Level	92	Level	90	Level	82

Gaps To Narrow if Possible				Upgrade These Skills				Knowledge to Add			
Ability	Level	Gap	Impt	Skill	Level	Gap	Impt	Knowledge	Level	Gap	Impt
Hearing Sensitivity	50	15	62	Time Management	58	23	69	No Knowledge Upgrades Required!			
Multilimb Coordination	55	14	65	Judgment and Decision Making	59	16	72				
Problem Sensitivity	50	8	72	Active Learning	71	9	76				
Inductive Reasoning	50	6	65	Critical Thinking	63	9	72				
Finger Dexterity	50	6	65	Troubleshooting	76	4	90				
Control Precision	53	5	68	Reading Comprehension	65	3	80				
Extent Flexibility	50	6	53								
Oral Comprehension	55	5	62								
Deductive Reasoning	48	4	65								
Speech Clarity	37	5	50								
Oral Expression	50	4	62								
Near Vision	50	4	62								
Information Ordering	46	4	56								
Category Flexibility	41	4	50								
Flexibility of Closure	46	4	50								
Depth Perception	44	3	56								


















































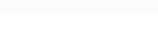
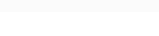
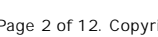
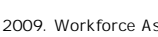






Arm-Hand Steadiness	48	2	72
Manual Dexterity	46	2	68
Visualization	48	2	56
Speech Recognition	39	2	56
Trunk Strength	42	1	53




LEVEL and IMPT (IMPORTANCE) refer to the Target Motorboat Mechanics. GAP refers to level difference between Maintenance Workers, Machinery and Motorboat Mechanics.

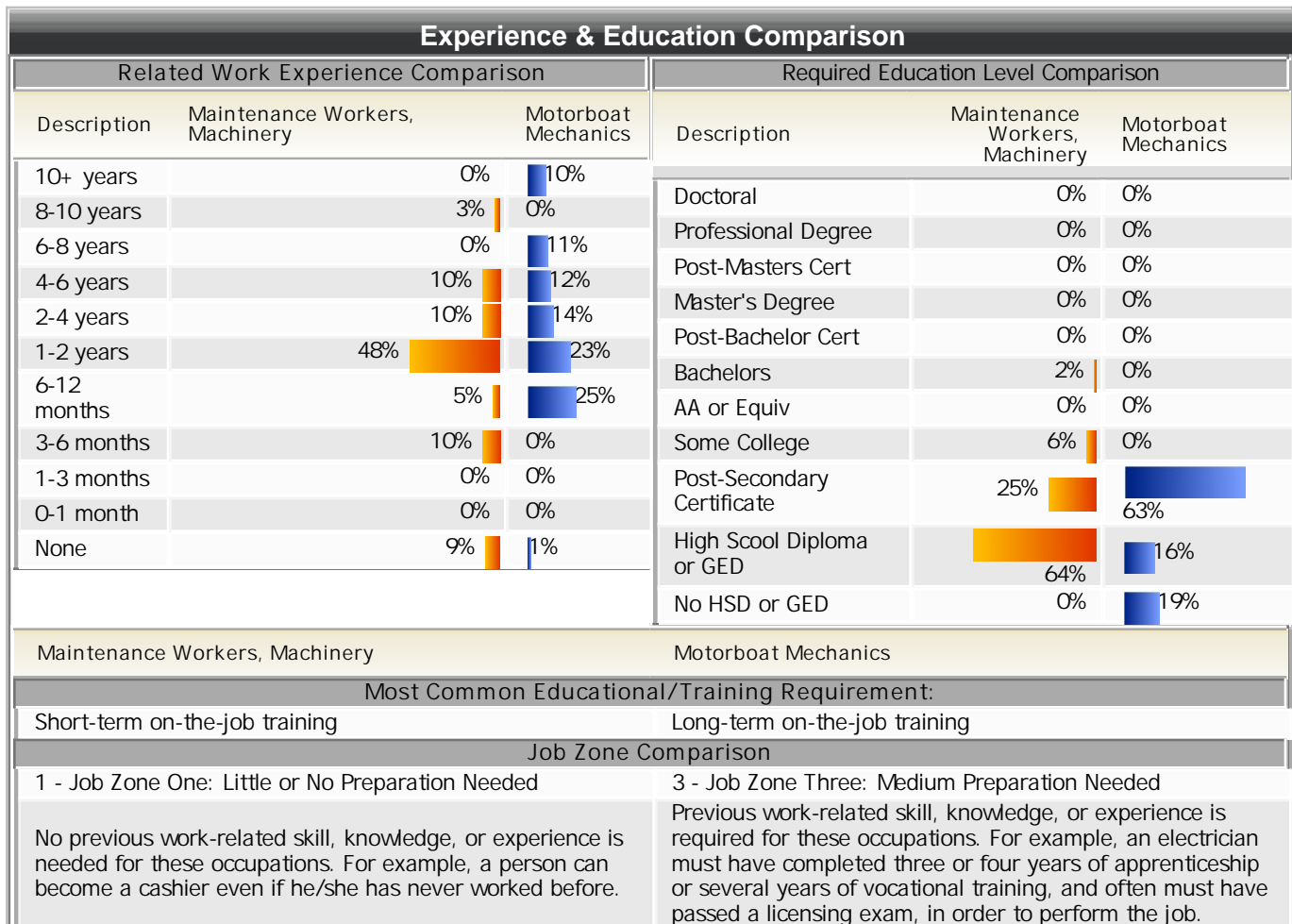
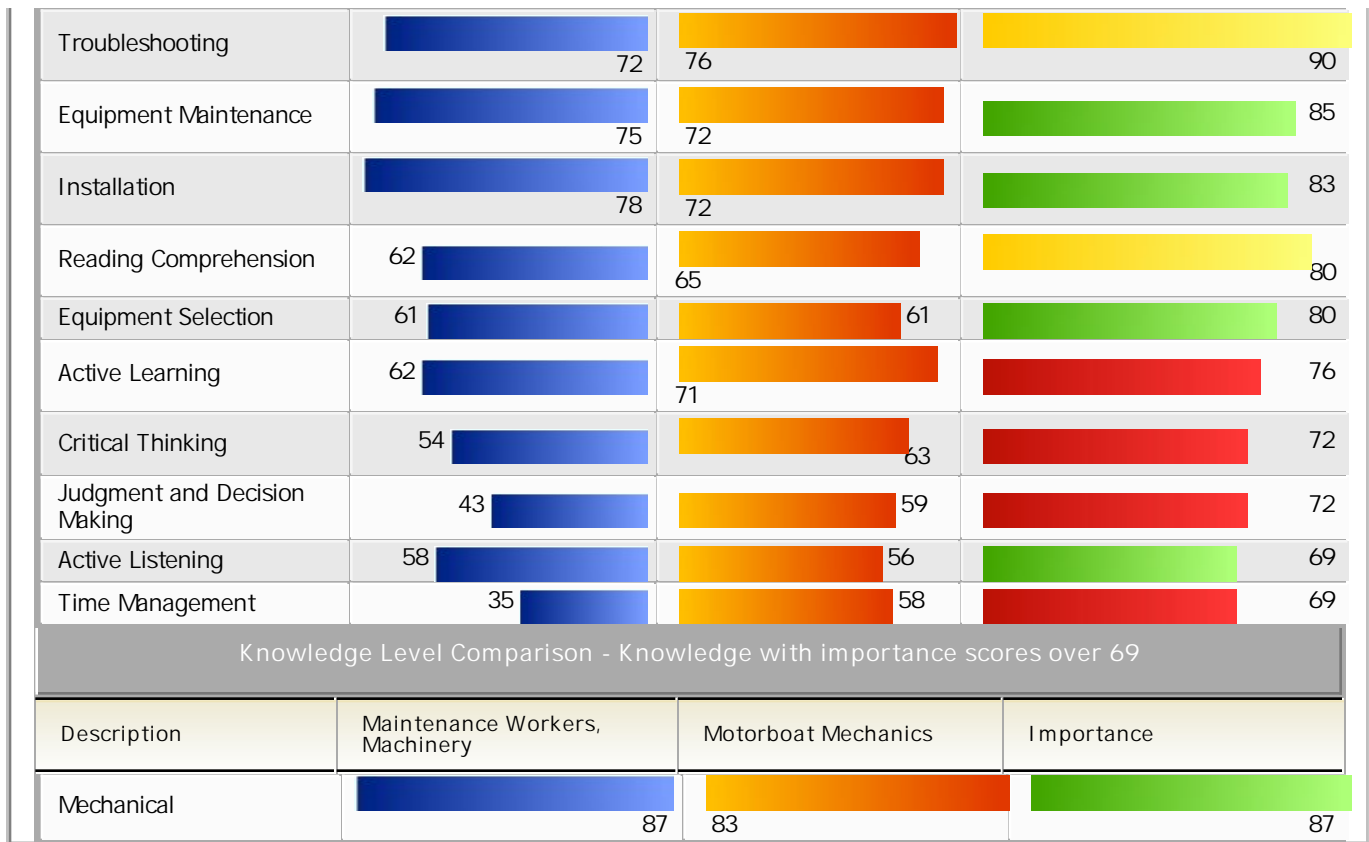
## ASK ANALYSIS

### Ability Level Comparison - Abilities with importance scores over 50

Description	Maintenance Workers, Machinery	Motorboat Mechanics	Importance
Problem Sensitivity	42 	50 	72 
Arm-Hand Steadiness	46 	48 	72 
Manual Dexterity	44 	46 	68 
Control Precision	48 	53 	68 
Deductive Reasoning	44 	48 	65 
Inductive Reasoning	44 	50 	65 
Finger Dexterity	44 	50 	65 
Multilimb Coordination	41 	55 	65 
Oral Comprehension	50 	55 	62 
Oral Expression	46 	50 	62 
Near Vision	46 	50 	62 
Hearing Sensitivity	35 	50 	62 
Information Ordering	42 	46 	56 
Visualization	46 	48 	56 
Depth Perception	41 	44 	56 
Speech Recognition	37 	39 	56 
Trunk Strength	41 	42 	53 
Extent Flexibility	44 	50 	53 
Category Flexibility	37 	41 	50 
Flexibility of Closure	42	46	50
Selective Attention	44	42	50
Speech Clarity	32	37	50

### Skill Level Comparison - Abilities with importance scores over 69

Description	Maintenance Workers, Machinery	Motorboat Mechanics	Importance
Repairing	77 	77 	93 





These occupations may require a high school diploma or GED certificate. Some may require a formal training course to obtain a license.

Employees in these occupations need anywhere from a few days to a few months of training. Usually, an experienced worker could show you how to do the job.

Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.

Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.

## Tasks

### Maintenance Workers, Machinery

#### Core Tasks

##### Generalized Work Activities:

- **Repairing and Maintaining Mechanical Equipment** - Servicing, repairing, adjusting, and testing machines, devices, moving parts, and equipment that operate primarily on the basis of mechanical (not electronic) principles.
- **Controlling Machines and Processes** - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).
- **Handling and Moving Objects** - Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.
- **Inspecting Equipment, Structures, or Material** - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- **Performing General Physical Activities** - Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials.

#### Specific Tasks

##### Occupation Specific Tasks:

- Clean machines and machine parts, using cleaning solvents, cloths, air guns, hoses, vacuums, or other equipment.
- Collaborate with other workers to repair or move machines, machine parts, or equipment.
- Collect and discard worn machine parts and other refuse in order to maintain machinery and work areas.
- Dismantle machines and remove parts for repair, using hand tools, chain falls, jacks, cranes, or hoists.
- Inspect or test damaged machine parts, and mark defective areas or advise supervisors of repair needs.
- Install, replace, or change machine parts and attachments, according to production specifications.
- Inventory and requisition machine parts, equipment, and other supplies so that

### Motorboat Mechanics

#### Core Tasks

##### Generalized Work Activities:

- **Repairing and Maintaining Mechanical Equipment** - Servicing, repairing, adjusting, and testing machines, devices, moving parts, and equipment that operate primarily on the basis of mechanical (not electronic) principles.
- **Getting Information** - Observing, receiving, and otherwise obtaining information from all relevant sources.
- **Identifying Objects, Actions, and Events** - Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.
- **Monitor Processes, Materials, or Surroundings** - Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems.
- **Inspecting Equipment, Structures, or Material** - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.

#### Specific Tasks

##### Occupation Specific Tasks:

- Adjust carburetor mixtures, electrical point settings, and timing while motors are running in water-filled test tanks.
- Adjust generators and replace faulty wiring, using hand tools and soldering irons.
- Disassemble and inspect motors to locate defective parts, using mechanic's hand tools and gauges.
- Document inspection and test results, and work performed or to be performed.
- Idle motors and observe thermometers to determine the effectiveness of cooling systems.
- Inspect and repair or adjust propellers and propeller shafts.
- Mount motors to boats and operate boats at various speeds on waterways to conduct operational tests.
- Repair engine mechanical equipment such as power-tilts, bilge pumps, or power take-offs.



stock can be maintained and replenished.

- Lubricate or apply adhesives or other materials to machines, machine parts, or other equipment, according to specified procedures.
- Measure, mix, prepare, and test chemical solutions used to clean or repair machinery and equipment.
- Read work orders and specifications to determine machines and equipment requiring repair or maintenance.
- Reassemble machines after the completion of repair or maintenance work.
- Record production, repair, and machine maintenance information.
- Remove hardened material from machines or machine parts, using abrasives, power and hand tools, jackhammers, sledgehammers, or other equipment.
- Replace or repair metal, wood, leather, glass, or other lining in machines, or in equipment compartments or containers.
- Replace, empty, or replenish machine and equipment containers such as gas tanks or boxes.
- Set up and operate machines, and adjust controls to regulate operations.
- Start machines and observe mechanical operation to determine efficiency and to detect problems.
- Transport machine parts, tools, equipment, and other material between work areas and storage, using cranes, hoists, or dollies.

#### Detailed Tasks

##### Detailed Work Activities:

- adhere to safety procedures
- adjust or set mechanical controls or components
- apply cleaning solvents
- assist mechanic, or extractive or construction trades craft worker
- clean equipment or machinery
- clean rooms or work areas
- construct, erect, or repair wooden frameworks or structures
- cut, shape, fit, or join wood or other construction materials
- erect scaffold
- fabricate sheet metal parts or items
- fabricate, assemble, or disassemble manufactured products by hand
- inspect machinery or equipment to determine adjustments or repairs needed
- install equipment or attachments on machinery or related structures
- inventory stock to ensure adequate supplies

• load or unload material or workpieces into

- Repair or rework parts, using machine tools such as lathes, mills, drills, and grinders.
- Replace parts such as gears, magneto points, piston rings, and spark plugs, and reassemble engines.
- Set starter locks, and align and repair steering or throttle controls, using gauges, screwdrivers, and wrenches.
- Start motors, and monitor performance for signs of malfunctioning such as smoke, excessive vibration, and misfiring.

#### Detailed Tasks

##### Detailed Work Activities:

- adhere to safety procedures
- adjust or set mechanical controls or components
- align or adjust clearances of mechanical components or parts
- align or adjust clearances of vehicle body parts or components
- analyze test information to determine equipment operating efficiency
- assemble, dismantle, or reassemble equipment or machinery
- conduct tests to locate mechanical system malfunction
- determine installation, service, or repair needed
- diagnose mechanical problems in machinery or equipment
- fabricate, assemble, or disassemble manufactured products by hand
- follow vehicle repair procedures
- inspect machinery or equipment to determine adjustments or repairs needed
- install or replace meters, regulators, or related measuring or control devices
- lubricate machinery, equipment, or parts
- maintain or repair ship/boat engine, machinery or equipment
- maintain or repair small engines
- maintain repair records
- move or fit heavy objects
- observe or listen to machinery or equipment operation to detect malfunctions
- operate hoist, winch, or hydraulic boom
- operate vehicle engine electrical system test equipment
- overhaul vehicle major operating units, such as engines or transmissions
- perform safety inspections in industrial, manufacturing or repair setting
- prepare reports
- read blueprints
- read specifications



- load or unload material or workpiece into machinery
- lubricate machinery, equipment, or parts
- maintain or repair industrial or related equipment/machinery
- maintain repair records
- mix paint, ingredients, or chemicals, according to specifications
- move materials or goods between work areas
- move or fit heavy objects
- observe or listen to machinery or equipment operation to detect malfunctions
- operate crane in construction, manufacturing or repair setting
- operate hoist, winch, or hydraulic boom
- operate sandblasting equipment
- operate vacuum or air hose
- perform safety inspections in industrial, manufacturing or repair setting
- read specifications
- read work order, instructions, formulas, or processing charts
- repair or replace malfunctioning or worn mechanical components
- repair sheet metal products
- requisition stock, materials, supplies or equipment
- signal directions or warnings to coworkers
- test materials or solutions
- test mechanical products or equipment
- understand service or repair manuals
- understand technical operating, service or repair manuals
- use acetylene welding/cutting torch
- use basic carpentry techniques
- use control or regulating devices to adjust or maintain industrial machinery
- use hand or power tools
- use hand or power woodworking tools
- use high voltage apparatus
- use knowledge of metric system
- use measuring devices in repairing industrial or heavy equipment
- use pneumatic tools
- use precision measuring devices in mechanical repair work
- use pressure gauges
- work as a team member

#### Technology - Examples

##### Data base user interface and query software

- Database software

##### Spreadsheet software

- read technical drawings
- read vehicle manufacturer's specifications
- read work order, instructions, formulas, or processing charts
- repair or replace electrical wiring, circuits, fixtures, or equipment
- repair or replace malfunctioning or worn mechanical components
- service vehicle with water, fuel, or oil
- set up and operate variety of machine tools
- solder electrical or electronic connections or components
- test electrical/electronic wiring, equipment, systems or fixtures
- test mechanical products or equipment
- test operate vehicles before or after repair
- understand service or repair manuals
- understand technical operating, service or repair manuals
- use 2-cycle engine technology
- use basic plumbing techniques
- use electrical or electronic test devices or equipment
- use electronic calibration devices
- use engine diagnostic equipment
- use hand or power tools
- use knowledge of metric system
- use machine tools in installation, maintenance, or repair
- use precision measuring devices in mechanical repair work
- use soldering equipment
- use voltmeter, ammeter, or ohmmeter

#### Technology - Examples



- Spreadsheet software

Word processing software

- Word processing software

#### Tools - Examples

- Abrasive wheels

- Abrasive rubbing stones

- Adjustable widemouth pliers

- Adjustable wrenches

- Bandsaws

- Oxyacetylene torches

- Dial calipers

- Compressed air guns

- Deburring tools

- Dollies

- Drill bits

- Ear plugs

- Forklifts

- Dial indicators

- Grease guns

- Lapping equipment

- Hammers

- Hard hats

- Chain falls

- Hold down clamps

- Jacks

- Ladders

- Lathes

- Levels

- Lockout hasps

- Metal cutters

- Metal inert gas MIG welders

- Micrometers

- Milling machines



- Personal computers
- Plumb bobs
- Jackhammers
- Buffing machines
- Power drills
- Grinding machines
- Bench saws
- Punches
- Reamers
- Respirators
- Rivet guns
- Rulers
- Safety glasses
- Safety belts
- Hacksaws
- Scaffolding
- Screwdrivers
- Shears
- Rigging equipment
- Socket wrench sets
- Soldering guns
- Steel rules
- Sheet metal folders
- Dies
- Pipe threaders
- Tungsten inert gas TIG welding equipment
- Industrial vacuums
- Arc welders
- Welding tips
- Spot-welding equipment
- Workshop cranes
- Brakes



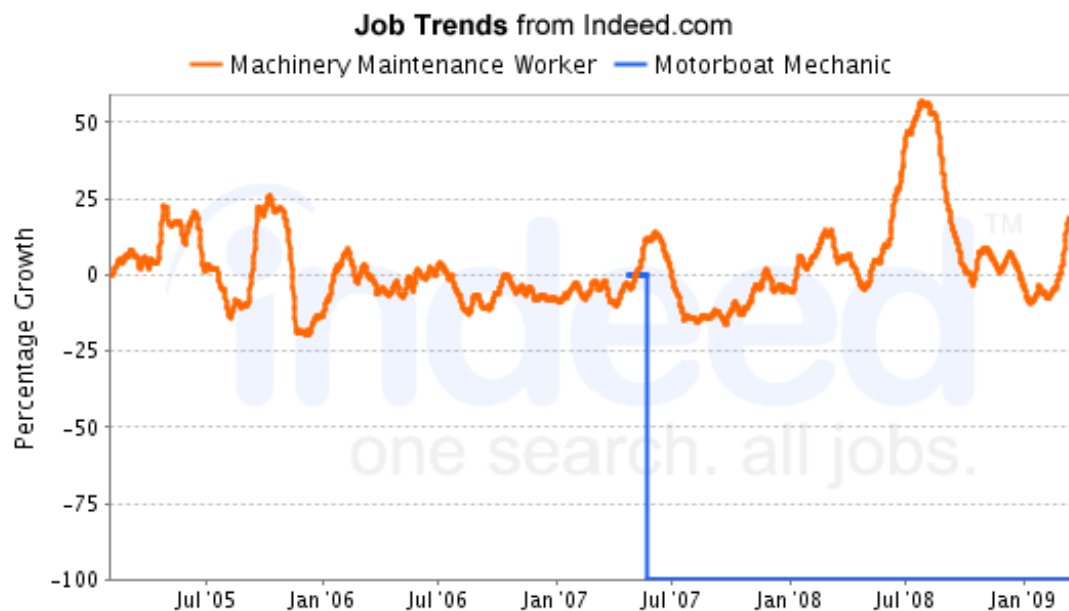


## Labor Market Comparison

Description	Maintenance Workers, Machinery	Motorboat Mechanics	Difference
Median Wage	\$ 34,100	\$ 34,980	\$ 880
10th Percentile Wage	\$ 18,630	\$ 24,940	\$ 6,310
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	\$ 38,610	\$ 42,120	\$ 3,510
90th Percentile Wage	\$ 43,370	\$ 49,060	\$ 5,690
Mean Wage	\$ 32,410	\$ 35,530	\$ 3,120
Total Employment - 2007	290	240	-50
Employment Base - 2006	337	288	-49
Projected Employment - 2016	278	305	27
Projected Job Growth - 2006-2016	-17.5 %	5.9 %	23.4 %
Projected Annual Openings - 2006-2016	5	8	3

## National Job Posting Trends

Trend for Maintenance Workers, Machinery

Trend for  
Motorboat  
MechanicsData from [Indeed](http://Indeed.com)

## Recommended Programs

Small Engine Mechanic and Repairer



Small Engine Mechanics and Repair Technology/Technician. A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain small internal-combustion engines used on portable power equipment such as lawnmowers, chain saws, rotary tillers, and snowmobiles.

No schools available for the program

#### Marine Maintenance/Fitter and Ship Repair Technology/Technician

Marine Maintenance/Fitter and Ship Repair Technology/Technician. A program that prepares individuals to apply technical knowledge and skills to repair outboard and inboard engines; test, maintain, and repair steering devices and electrical systems; repair metal, wood, and fiberglass hulls and vessel components; fabricate and maintain sails; and repair and balance propellers and drive shafts.

Institution	Address	City	URL
Wasington County Community College	One College Drive	Calais	<a href="http://www.wccc.me.edu">www.wccc.me.edu</a>
Wasington County Community College	One College Drive	Calais	<a href="http://www.wccc.me.edu">www.wccc.me.edu</a>

### Maine Statewide Promotion Opportunities for Maintenance Workers, Machinery

O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings
49-9043.00	Maintenance Workers, Machinery	100	1	290	\$34,100.00	\$0.00	-17%	5
51-4121.06	Welders, Cutters, and Welder Fitters	91	2	1,610	\$38,030.00	\$3,930.00	7%	49
49-9044.00	Millwrights	90	3	830	\$41,280.00	\$7,180.00	-12%	11
49-3051.00	Motorboat Mechanics	88	3	240	\$34,980.00	\$880.00	6%	8
49-9041.00	Industrial Machinery Mechanics	88	3	990	\$39,370.00	\$5,270.00	7%	25
47-5021.00	Earth Drillers, Except Oil and Gas	88	3	140	\$37,470.00	\$3,370.00	2%	4
51-4034.00	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	88	3	110	\$34,350.00	\$250.00	-9%	2
47-2011.00	Boilermakers	87	4	60	\$39,260.00	\$5,160.00	12%	3
49-3031.00	Bus and Truck Mechanics and Diesel Engine Specialists	87	3	1,180	\$34,210.00	\$110.00	6%	34
49-3042.00	Mobile Heavy Equipment Mechanics, Except Engines	87	4	880	\$37,010.00	\$2,910.00	5%	22



49-2094.00	Electrical and Electronics Repairers, Commercial and Industrial Equipment	86	3	440	\$49,450.00	\$15,350.00	-19%	15
49-2093.00	Electrical and Electronics Installers and Repairers, Transportation Equipment	85	3	130	\$35,960.00	\$1,860.00	4%	4
51-4111.00	Tool and Die Makers	85	3	160	\$51,670.00	\$17,570.00	-11%	2
47-4021.00	Elevator Installers and Repairers	84	4	0	\$50,960.00	\$16,860.00	0%	0
51-4041.00	Machinists	84	3	1,860	\$41,560.00	\$7,460.00	4%	35

### Top Industries for Motorboat Mechanics

Industry	NAICS	% in Industry	Employment	Projected Employment	% Change
Other motor vehicle dealers	441200	38.93%	9,389	12,582	34.01%
Self-employed workers, primary job	000601	19.75%	4,762	5,073	6.54%
Personal and household goods repair and maintenance	811400	12.93%	3,117	2,893	-7.19%
Ship and boat building	336600	2.94%	709	794	11.93%
Self-employed workers, secondary job	000602	2.89%	698	695	-0.45%
Support activities for water transportation	488300	1.37%	331	383	15.76%
Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance	811300	0.63%	151	160	5.82%
Consumer goods rental	532200	0.63%	153	166	8.77%
Miscellaneous durable goods merchant wholesalers	423900	0.61%	146	168	14.80%
Scenic and sightseeing transportation	487000	0.50%	121	156	29.38%
Inland water transportation	483200	0.40%	96	108	12.28%
Automotive mechanical and electrical repair and maintenance	811110	0.35%	84	100	18.73%
State government, excluding education and hospitals	929200	0.30%	73	72	-1.88%

### Top Industries for Maintenance Workers, Machinery

Industry	NAICS	% in Industry	Employment	Projected Employment	% Change
Local government, excluding education and hospitals	939300	6.40%	5,397	6,063	12.34%



Motor vehicle parts manufacturing	336300	3.89%	3,278	2,610	-20.39%
Plastics product manufacturing	326100	3.16%	2,666	2,826	6.00%
Animal production; primary job	112000	2.73%	2,304	2,043	-11.34%
Animal slaughtering and processing	311600	2.47%	2,079	2,373	14.13%
Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance	811300	2.36%	1,988	2,104	5.82%
Support activities for air transportation	488100	2.25%	1,897	2,292	20.80%
Coal mining	212100	1.76%	1,483	1,498	0.99%
Pharmaceutical and medicine manufacturing	325400	1.71%	1,439	1,814	26.03%
Colleges, universities, and professional schools, public and private	611300	1.70%	1,437	1,608	11.87%
Fabric mills	313200	1.53%	1,286	908	-29.38%
Commercial and industrial machinery and equipment rental and leasing	532400	1.52%	1,281	1,565	22.19%
Pulp, paper, and paperboard mills	322100	1.49%	1,256	871	-30.64%
Electric power generation, transmission and distribution	221100	1.47%	1,241	1,141	-8.03%
Converted paper product manufacturing	322200	1.39%	1,168	980	-16.08%